

Forming Artistic-Design Competency of Vocational Design Teacher

Vera P. Falco^a, Vladimir A. Fedorov^a, Evgenij M. Dorozhkin^a
Nina I. Merkushova^b and Olga V. Bakanach^b

^aRussian State Vocational Pedagogical University, Ekaterinburg, RUSSIA; ^bSamara State University of Economics, Samara, RUSSIA

ABSTRACT

The relevance of the problem under study is based on the necessity to achieve effectiveness of the learning process aimed at forming a competent specialist and ensuring the quality of training of vocational teacher of a certain subject (design). The aim of the article is to provide theoretical substantiation, to elaborate and to test the structural-conceptual model of forming artistic-design competency of vocational design teacher which is important for successful professional activity within the mobile environment of modern production and learning process. The leading approach to studying the problem is the system approach which allows to review the learning process in interdisciplinary interaction that ensures integration of educational subjects' content into a united professional field of activity to contribute to formation of professional competencies of vocational teacher. The structural-conceptual model of forming artistic-design competency of vocational design teacher is presented and includes the following blocks: scientific-methodological which includes fundamentals of social, historical and natural sciences, and practice-oriented including educational activity determined by specific features of designer's activity which requires knowledge and process algorithms that ensure execution of certain artistic and design-creative tasks. The structural-conceptual model is aimed at forming the artistic-design competency of vocational design teachers, ensures effectiveness and quality of students' education, as well as their adaptation to changing environment of professional activity. The materials can be useful for academic researchers and practitioners in the sphere of professional and vocational education, as well as for candidates for a master's degree and students of vocational universities, institutes and faculties.

KEYWORDS

Artistic-projection competency, designer-teacher, interdisciplinary interaction and complementarity, vocational education, vocational teacher

ARTICLE HISTORY

Received 07 March 2016
Revised 21 June 2016
Accepted 16 August 2016

Introduction

Biprofessional orientation of the vocational training teacher (Fedorov, 1999; 2001) activities in field of design, including artistic-design and psychology-pedagogical aspects, is provided by a complex of knowledge, skills and personal

CORRESPONDENCE Vera P. Falco ✉ v-falko@yandex.ru

© 2016 Falco et al. Open Access terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>) apply. The license permits unrestricted use, distribution, and reproduction in any medium, on the condition that users give exact credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if they made any changes.

qualities enabling him not only be well-versed in laws of artistic and design creation, but also carry out learning and practice and education process.

Educational research and practice of educational activities show that the problem of improving the content of training and courseware for preparation of specialists based on innovative approach is becoming of special importance, competency-based approach being amongst the list of such innovative approaches.

The researchers mention the following essential characteristics of competence: a) competence expresses the meaning of traditional triad “expertise, knowledge and skills” and binds these components; b) competence can be broadly defined as an enhanced knowledge of the subject and mastered skills; c) competence assumes constant updating of knowledge, learning new information for successful solution of professional tasks at the present moment and in given conditions; d) competence includes both informative (knowledge) and processual (skills) components (Zeer, 2006; Valeeva, Korolyeva & Sakhapova, 2016).

Review of researchers’ opinions on the topic leads to the conclusion that all the approaches to the definition of “competence”, as well as “competency”, outlines personal professional experience, readiness to goal-setting and action including value component as top-priority. Emphasizing the distinction between the terms “competence” and “competency”, we shall define them as follows: competence is the system of knowledge and skills, providing readiness to perform professional activities, while competency is an integrity (group of interrelated and interdependent) of knowledge, skills, experience and personal qualities enabling successful implementation of professional activities in the specific field (Zeer, 2006; Zimnyaya, 2003; Gromova & Saitova, 2016; Valeeva & Amirova, 2016).

Therefore in this research we are considering competence as an ability of a vocational training teacher to perform successfully professional pedagogical activities within the framework of mastered competencies, permitting to use knowledge, skills, experience and personal qualities in making decisions required for effective and high quality professional training in design field.

The foundation of mastering the profession of a vocational training teacher in design field is creative potential which is reflected in qualities, gained and displayed both during training and in future professional activities (Zeer, 2006). An important role is given to intellectual, creative, artistic, designing, emotional and sensual human abilities, providing professionally developed memory and attention; abstract-logical thinking; creative thinking and imagination; dimensional-spatial thinking and imagination; emotional robustness, self-organization and self control. Consistently with the multi-aspect orientation of artistic and designing activity of the teacher, the content of his education shall include:

- realization of social significance and professional responsibility of designing activities;
- knowledge of main laws and regularities of science, technology, culture and art development;
- possession of practical skills of different types of graphic art, project graphic, computer technologies;
- experience in artistic design plan implementation in practice.



In the view of modern requirements (in the context of development of Federal State Standards of Higher Education) we suppose that professional competence of the vocational design teacher (taking interior design as an example) providing professional readiness to effective pedagogical activities and further professional development contributing to direction and adaptation on labor-market, includes a complex of general cultural (common) and professional (general professional and special) competencies. General cultural competencies in turn include general erudition of the students based on general scientific, social and instrumental competencies together providing readiness of the future specialist to master professional competencies. Professional competencies include expertise, knowledge and skills on the subject (what to teach), in other words knowing the subject and its peculiarities, as well as mastering methods and means of teaching for successful pedagogical activities (how to teach). These competencies represent the integrity of psychological-pedagogical and artistic-design knowledge, skills, experience and personal qualities enabling ability and readiness of the future specialist to efficient professional pedagogical activities. We will define such competencies as *formed* in the present research.

Therefore vocational teacher in design field shall have *formed* competencies for successful professional activities. Besides, taking into account that the problem of adaptation on the labor-market requires “high and fast-changing acmeological parameters for personal development” (Verbitskaya, Matafonov & Fedorov, 2005), the ability to analyze and foresee constantly changing social and economic environment becomes more and more important. In this case ability of personal and professional self-realization based on professional, information and technical, communicative mobility provides *perspective* (required for orientation and adaptation on the changing labour-market) competencies.

High level of vocational teacher’s preparation to a large extent depends on successful solution of the problem of formation of artistic-design competency. Artistic-design competency of the future vocational teacher in design field was referred to professional (special) competences. General cultural (common, basic) competencies are learned during training on general humanitarian and social-economic disciplines, while professional (general professional and special) competencies are learned during training on general professional disciplines and industry-specific disciplines which form knowledge, skills and personal qualities for pedagogical and artistic-design activity. Artistic-design competency of the specialist is developed during creative process of object designing “in interrelation of art, science and technology” (Shein, 2002).

For the purpose of defining the requirements to the content of vocational teacher’s preparation artistic-design competency in the research is divided into the following parts:

- *artistic* – ability to generate own analytical, aesthetic and practical relation to items of cultural and artistic value, and understanding of the role of artistic-graphic creative work in learning subject component (design). The following aspects are required for that: knowing the methods of graphical language of a drawing, painting, skills of picturing objects, space and human figures, demonstration methods of design objects presentation, as well as ability to reproduce the designed objects by artistic-graphic means;
- *design* – ability to design three-dimensional environment for developing processes of working, living conditions and social life activities based on the laws

of beauty and reasonability. The following aspects are required for that: design-creative skills including knowledge of basic composition understanding, methods of achievement of integral perception and expression of design concept, methods of design projecting, information computer technologies, ability to use graphic knowledge and skills in drawings development in accordance with the standard requirements;

– *personal*– realization of social value and professional responsibility of designing activities. The following aspects are required for that: intellectual, creative, artistic, emotional and sensual qualities, providing professionally developed memory and attention; creative, spatial and constructive thinking; abstract-logical thinking; three-dimensional thinking and imagination; emotional robustness, self-organization, self-control; understanding of the perspectives of future activities; ability to keep up with the forecasts for development of sciences: architecture, design, psychology, pedagogics.

Research of the problem of artistic-design competency formation with consideration of the specified components and requirements to the preparation of the professional training teacher in design field in the present work is connected with the solution of the following tasks:

1. To analyze theory and practice of preparation of professional training teachers in design field (interior design is taken as an example) and identify peculiarities of such preparation.
2. To develop structural content model of artistic-design competence formation for students studying at “Professional training (design)”.
3. To identify a complex of organizational pedagogical conditions of implementation of structural content model of artistic-design competence formation for future professional training teachers in design field.
4. To develop procedure of integrated assessment of future specialist artistic-design competence level.
5. To test the developed structural content model of artistic-design competence formation for future professional training teachers in design field during experimental and research work.

Materials and Methods

Methods of the research

The following theoretical and empirical methods were used during the research: analysis of psychology-pedagogical and methodological literature, comparison, generalization, systematization, prediction, description, supervision, expert examination method, method of pedagogical consilium, monitoring the students’ professional training, studying and best practices.

Experiment facility of the research

The experiment bases of the research were the Russian State Vocational University and the Ural State University of Architecture and Art.

Stages of the research

The research was performed in three stages:



During the first stage the theoretical analysis of scientific literature was performed, the direction was defined, the problem, aim, particular tasks and research methods stated, the conceptual framework of the research formed and empirical materials accumulated; the notions of professional competency and artistic-design competency of vocational design teacher specified; the descriptors of the artistic-design competency were determined and the working hypothesis developed.

During the second stage the structural-conceptual model of forming artistic-design competency of vocational design teacher was developed; the hypothesis was checked, the tasks solved; the result of the work were the following: a) the structural-conceptual model of forming artistic-design competency of vocational design teacher; b) a complex of organizational-pedagogical conditions aimed at forming the artistic-design competency of vocational design teacher during the learning activity and implementing those conditions into learning process.

During the third stage the results were processed and systematized, their theoretical interpretation was carried out, the conclusions were defined, the scientific-methodological materials were prepared for publication; and the results were implemented into the higher education practice.

Results

Structure and content of the model

Based on the system and competency-based approaches the structural-conceptual model of forming artistic-design competency of vocational design teacher is developed.

The main theoretical conditions of structuring the learning content are: interdependence of general scientific, pedagogical and professional knowledge; unity of theoretical and practical education; separating general and differentiated parts of the learning disciplines' content; ensuring the increasing complexity level of the disciplines' content; systematic accumulation of complexes of skills, knowledge and methods of action.

The complex of learning disciplines for specialty "Interior design", in accordance with their content, is structured in the following manner: general disciplines, psychology-pedagogical disciplines and artistic-design disciplines. Those disciplines form professional skills and knowledge mastering all of which should ensure training a specialist.

Based on the fact that the ability to perform artistic-design activity is conditioned by the integrity of skills and knowledge received as a result of mastering disciplines of art course, art history course and project-creative course, we can determine the artistic-design competency of vocational design teacher as the ability to apply knowledge, skills and personal qualities that ensure readiness and effectiveness of carrying out artistic-design activity, understanding its social significance and personal responsibility for the results of this activity. The competency is characterized by the availability of such qualities and traits of a person that are responsible for having extensive professional knowledge and skills in the sphere of design: ability for artistic and design creativity, structural-special, logical and creative thinking, critical thinking which allows to understand social significance and professional responsibility of a designer's activity.

The artistic-design competency is based on knowing the main laws and regularities of development of science, techniques, culture and art; on mastering the artistic-design skill that includes the main compositional notions, mastering the visual closure and expression vehicles. The evaluation criteria are the skills of exact and flawless performance of given artistic and project-creative tasks, mastering various technologies of carrying out professional works (artistic and project-creative), displaying creative initiative and the ability to critically assess artistic-design decisions. At that, the *formed* artistic-project competency ensures readiness for successful activity in art modeling and design of interior and objective-spatial environment. At the same time *prospective* artistic-design competency ensures not only readiness for successful artistic and project activity but also readiness for personal-professional self-actualization on the basis of professional, information-technical and communicative mobility, as well as the ability to analyze and foresee the constantly changing socio-economic situation.

Reviewing designer's activity within the context of universal human culture as man-creative revealed the significance of disciplines of artistic-project group. This determined the philosophical aspect in the content of elaboration that allows to consider the above-mentioned disciplines not only as separate means of creating visual objective-spatial forms, but also to understand them as a way to reflect, analyze and transform the world around us.

The psychological aspect of mastering disciplines of artistic-project group presumes using the mechanism of perception and reflection in creating surrounding objects during artistic-project activity carried out within designing and modeling interior and objects.

The art history aspect of mastering disciplines of artistic-project group includes functional-pragmatic and aesthetic functions, which, in its turn, determined the importance of implementing the following functions: society-transforming, cognitive-heuristic, artistic-conceptual, hedonistic, educational etc.

Philosophical, psychological and cultural aspects of artistic-design disciplines' mastering elaborate the scientific-theoretical knowledge required both for reflecting on artistic and design-creative processes and for pedagogical component of vocational design teachers' education, as well as for their further vocational activity. The above-mentioned aspects comprise the scientific and methodological block (Fig.1) as the methodological foundation of the structural-conceptual model of forming vocational design teacher's artistic-design competency.

The analysis of the content of training in artistic-design disciplines enabled us to identify the presence of uniting elements, such as perception (direct reflection of objective reality by organs of senses), analysis (method of scientific research by reducing an object to its elements) and synthesis (method of studying an object in its integrity, in unity and interconnection of its parts). In this case, synthesis is considered as creative, professionally-oriented level which is an instrument of creating and transforming of the environment.

Artistic-design disciplines are characterized by exact knowledge, scientific methods (observation, analysis, synthesis, experiment, modeling etc.) and systemacity. The fact that these disciplines are aimed at profilization (interior design) and specifics of professional activity makes it possible to build "relations" with objects which define the content of specialization (design) on the basis of



invariable and variative parts of the education plan. The content of education which ensures forming of a vocational design teacher's artistic-design competency determines the practice-oriented block which includes the following:

1. Educational activity in accordance with the requirements of the Federal State Higher Education Standards and requirements of an employer which is a practical expression of competency-based approach and allows to perceive the education process in its integrity, as the system of perceiving (perception), interpreting (analysis) and creative transformation of reality (synthesis).

2. Industry-specific training of artistic-design disciplines taking into account the specifics of professional activity which determines knowledge and algorithms of processes ensuring execution of specific art and design-creative tasks linked to mastering invariable and variative parts of the education content.

All components that comprise the structure of forming student's artistic-design activity are interrelated and interdependent: when one of them is influenced the whole system is influenced, too, which makes it possible to create during the education process an artistic-design competency (formed, prospective).

Thus, the structural-conceptual model of forming artistic-design competency of vocational design teacher (Figure 1) is created within an open and dynamically changing system and consists of the following structural and content-based components (blocks): *scientific-methodological* which discloses scientific-methodological conditions related to training in artistic and design-creative activity. It includes fundamentals of social, historical and natural sciences – philosophical (essential), psychological (reflective) and cultural (functional-pragmatic, aesthetic) aspects. This block carries out scientific-cognitive and conceptual-reflectory function. Reflection conditions the intensity of a person's experience, ensures re-thinking of the knowledge content and understanding the methods of own activity; *practice-oriented* block includes target studies of industry-specific and special disciplines taking into account specifics of designer activity; forms knowledge and algorithms of processes ensuring execution of specific art and design-creative tasks and includes motivational and value-based, cognitive and operational components which ensure readiness for self-actualization and constant professional growth (Falco & Stepanov, 2008; Fedorov & Falco, 2008; Fedorov & Falco, 2010).

The presented model is the basis for forming artistic-design competency of vocational design teacher.

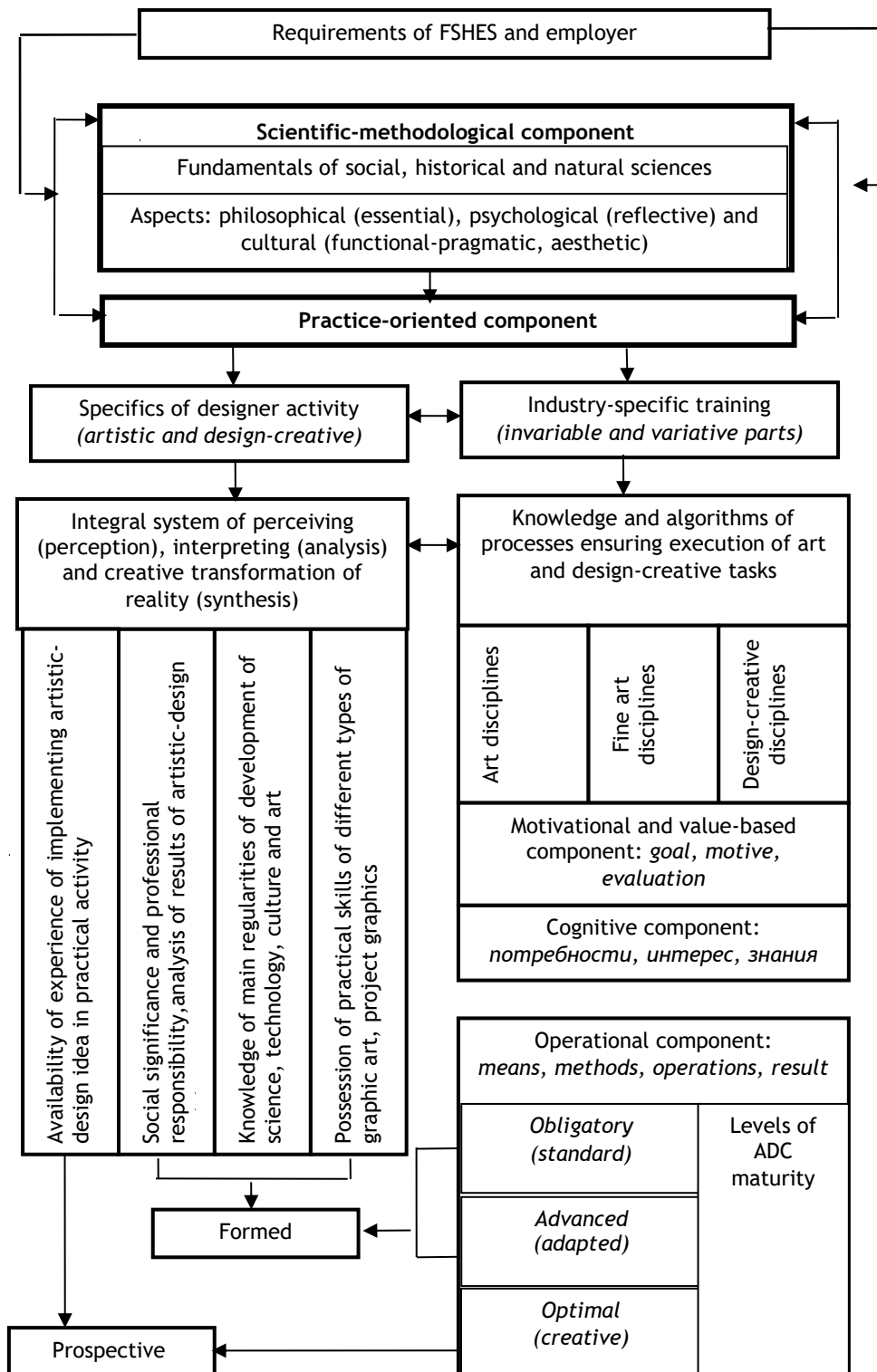


Figure 1. Structural-conceptual model of forming artistic-design competency of vocational design teacher



Stages of model implementation

Implementation of the model included execution of the following experimental work stages:

- determination of the initial level of maturity of artistic-design competency using methods of testing, pedagogical observation and statistical processing of the results;
- development and implementation of pedagogical conditions which encourage successful functioning of the structural-conceptual model of forming artistic-design competency;
- determining the level and identifying the dynamics of maturity of artistic-design competency.

Acknowledgement stage

The experimental part of the research was conducted on the basis of the Russian State Vocational University and included acknowledgement and formation stages.

The acknowledgement stage was aimed at further theoretical justification of the problem. At this stage we analyzed the experience of teaching disciplines of the specialty “Interior design” to full-time students of all years taking into account the interdisciplinary interaction and complementarity.

Assessment of the level of students’ artistic-design competency maturity was based on the functional management model at the level of subsystems “chair – teacher” and “teacher-student”. The following management functions are singled out in the content of management between these subsystems: information-analytical, motivational and target-oriented, planning function, organizational-performing, control-diagnostic and regulatory-correctional. The subsystem “chair-teacher” was examined by the following parameters:

- diagnostics of the quality of educational process by artistic-design disciplines;
- evaluating the quality of education programs and methodological materials;
- evaluating the quality of intersubject links when mastering artistic-design disciplines.

The quality of education process by the said disciplines was diagnosed on the basis of the pedagogical observation method which is defined as direct perception by examiner of studied pedagogical phenomena and processes.

In our research we performed complete observation, that is, observation that covers the process in its integrity. The complete observation was complemented by elective recording of certain phenomena (discrete observation). The principle of neutrality was used (researcher was not involved in actual activity).

The results of the research of the “chair – teacher” subsystem were recorded and in the process of further analytical processing are presented by the following conclusions:

- when organizing teachers’ activity the links between artistic-design disciplines are not accounted for. Lack of interdisciplinary links and orientation towards the major discipline affected the integrity of training;

– when planning the content of artistic-design disciplines the specifics of vocational design teachers’ training was not accounted for; this specifics is conditioned by the integration of future activity which, as a result of training, did not ensure forming of required artistic-design skills and knowledge.

Quality of education programs and methodological materials was evaluated for Interior Design profile using the expert method.

The following evaluation criteria were proposed to the expert group:

1. Compliance of the working programs to the state Standard of Education.
2. Compliance of the working programs used in the education process to the education plan of specialty “Professional Education (Design)”.
3. Compliance of the content of the working programs to aims and tasks of vocational design teachers’ training by profile “Interior Design”.
4. Quality of performing systematization and structuring of material in the working programs.
5. Availability of innovative elements in the working programs.
6. General level of practical-pedagogical value of the working programs.
7. Compliance of the theoretical and practical components of the working programs to the modern requirements for vocational design teachers’ training.

It was also proposed to the experts who are scientific leaders in training of artistic-design disciplines to evaluate working programs by 4 levels: innovative, optimal, Acceptable and critical (Falco, 2007; Falco & Stepanov, 2008).

According to the research data, it was concluded that the training (working) programs of artistic-design disciplines should be updated in order to form artistic-design competency in accordance with the developed model which is initially ensured by systematization and structuring of interdisciplinary links.

The insufficient qualitative level of the methodological base of the artistic-design disciplines in the “teacher-student” subsystem manifested itself in the following:

1. Lack of required methodological orientation of a student in artistic-design activity;
2. Lack of integration of the tasks of studying art, fine art and design-creative disciplines with the tasks of forming the professional activity field in the sphere of design.

The identified problems were corrected and solved through the following management functions:

– *information-analytical* which revealed the insufficiency of quality of students’ training for artistic-design disciplines which determined the necessity to implement the developed structural-conceptual model of forming artistic-design competency and implementing a set of organizational-pedagogical conditions determined by a set of components: motivational, content-related, process, evaluative and reflective;

– *motivational* which is aimed at justifying the stimuli of theoretical-practical training of students linked to planning of their professional activity;

– *planning function* which determined the value of objective in training students for artistic-design activity together with the conditions of short-term and long-term planning of target implementation;



- *organizational* which served to execute the planned tasks on modernizing the education process;
- *diagnostic function* based on which the quality of education at intermediate and final stages was determined and the level of actual training was compared to a standard one;
- *regulatory function* within which necessary corrections were made to the content of students' training.

An efficient means of managing the education process is using rating system of evaluating the quality of students' learning activity.

The comparative analysis was carried out by comparing results of training before and after implementing the model and pedagogical conditions.

Methods of pedagogical consilium, expert examination, pedagogical observation and monitoring were used to evaluate the quality of training for artistic-design disciplines.

The results of pedagogical consilium (inspection) were recorded and are the following:

- discussion of works in groups trained in accordance to the model revealed advantages in the quality of work execution by students (level of marks and qualitative characteristics);
- by the results of the consilium several components of education content were corrected, interdisciplinary links were specified from the perspective of integrative approach in order to improve the education process.

Comparing the quality of training by expert evaluation method, in general, produced results that corresponded with the results received during pedagogical consilium (observations with the participation of teachers of artistic-design disciplines).

The experts noted higher level of training on all artistic-design disciplines of students who began studying in 2004-2005 academic year, that is, since the implementation of the model, as compared to the level of training of students who had started their studies earlier.

The pedagogical observation method is characterized by direct perception of phenomena and processes in their integrity and dynamics of changes (Babansky, 1982). It confirmed the prospective character of the following organizational-pedagogical conditions of forming artistic-design competency that were identified during the research:

1. Integration of industry-specific and special training disciplines executed at the expense of identifying interdisciplinary links is built on the basis of interdisciplinary interaction and complementarity and ensures integrity of the process of forming artistic-design competency of the future specialist.
2. Projecting the training content on the basis of the major discipline "Artistic modeling of interior and objective environment" allows us to put quasiprofessional activity (in this case – designer activity) on the first place in the education process of future vocational design teachers. Cognition of this activity in the process of performing artistic-design-creative tasks forms the personality of future teacher who is able to take upon him- or herself the responsibility for decisions taken.

3. Professional-educational environment which is formed by inclusion of actual artistic and design-creative tasks at the expense of students developing and implementing actual projects ensures productivity of artistic-design activity.

Forming stage

The forming stage aims at checking the effectiveness of the developed structural-conceptual model of the set of organizational-pedagogical conditions of forming artistic-design competency of future vocational design teachers.

At this stage, using the methods of diagnostics, the artistic-design competency maturity level was studied which was directed towards involving students in artistic and project-creative activity which leads to their developing the skill of design interiors of different purposes and of different level of complexity.

Control stage

The artistic-design competency of students specializing in interior design was evaluated by three levels: obligatory (standard), advanced (adapted) and optimal (creative).

The discipline “Artistic modeling of interiors and objective environment” is defined as major as by studying it students accumulate a set of components which are most integral in determining the level of artistic-design competency maturity. The result of maturity of the artistic-design competency is mastering the comprehensive approach towards designing interiors which manifests itself in activity that is characterized by systemacity and stage-by-stage execution of the tasks set. Stages of mastering the project activity during discipline studying are based on the architectural and artistic design proposed by B.G. Barkhin (1982), G.B. Minervin (2004), V.T. Shimko (2005).

In the system of education process the artistic-design competency maturity level was determined by the results of interim assessment during the period of studies which included results of tests, semester exams, qualification and technological practices. The final results also included the graduate qualification works. Assessing the training included finding the harmonious unity of designer and pedagogical training and included the following:

- review of project activity in the sphere of design and professional education within the modern socio-humanistic context, taking into account their orientation towards developing project culture;
- identifying general regulatory foundations of designer and pedagogical activity;
- disclosing the essence of creative self-actualization of a specialist in design and pedagogical projecting;
- separating notions that are common for design and pedagogy and correlation of their interpretations in each area of knowledge, etc. (Tkachenko, Klimov & Kozhukhovskaya, 2006).

To determine the maturity level of researched competency is an important condition of identifying the readiness of students of design for future professional activity (Kon, Freyman & Yuzhakov, 2013). Knowledge control carried out before and after the implementation of the developed model showed



increase in number of students who reached acceptable and optimal levels of knowledge maturity required for performing artistic-design activity (Table 1).

Table 1. Results of implementing Structural-conceptual model of forming artistic-design competency of vocational design teacher.

Period of study	Academic year	Distribution of students by training quality levels, %		
		Obligatory (standard)	Advanced (adapted)	Optimal (prospective)
Before implementation of the model in the learning process	2003/04	50,0	30,0	20,0
	2004/05	31,5	36,3	32,2
	2005/06	28,0	37,5	34,5
	2006/07	30,5	33,6	36,0
Upon implementation of the model in the learning process	2007/08	24,6	35,0	40,4
	2008/09	24,4	35,6	40,0
	2009/10	23,9	34,6	41,5
	2010/11	23,7	34,0	42,3
	2011/12	21,7	36,2	42,1
	2012/13	20,8	35,7	42,5
	2013/14	20,7	37,2	42,1

The following levels of training for disciplines are proposed:

- obligatory level (standard);
- advanced (adapted to social goals – employer's requirements);
- optimal (creative – allowing to successfully function within changing employer's requirements).

Obligatory level of training must be in absolute compliance with the requirements of the state educational standard and ensure readiness for professional activity. At the same time this level of future specialist's training cannot be linked to the adaptively for future changes in the professional activity field. Obligatory level is a «threshold», «standard» level of specialist's training that forms the possibilities of future professional. If this level is linked to a rating mark then it would be an indicator in points corresponding to a traditional «satisfactory» mark.

The role of level of training which would allow future specialist to start active professional activity is performed by advanced (adapted) level. By its content it means the conformity of a specialist's preparation for solving actual artistic-design tasks. The advanced (adapted) level requires from vocational teacher who drafts the content of this level to know actual professional environment which in turn is developing dynamically and requires constant observation (monitoring). The mark in points (of the traditional assessment system) for mastering the content of this level is «good».

The third level of training for a discipline – optimal – must comply with the modern level of requirements set for a specialist by an employer which is expressed in the ability to demonstrate mobility in mastering additional integrated competencies. The content must adequately express the modern level

of requirements to the specialists' training. Marks in pints (both in the traditional and in rating system) must be the highest.

Linking a student's rating to the content of training for a discipline will allow to advance in overcoming formal approach to the quality management. This control system will adequately reflect the specifics of designer-teachers' training (Falco & Stepanov, 2008).

Analysis of dynamics of artistic-design competency maturity in the experimental group gives us the reason to believe that implementation of the developed structural-conceptual model allows to substantially increase the effectiveness of the process of forming artistic-design competency of future vocational design teacher.

Discussions

Education is considered to be a process accompanying people during their whole lives and ensuring that everyone can reach self-actualization in personal, professional and socio-cultural spheres and is understood as the process of expanding the possibilities for a person to competently choose their life journey and personal development. The top-priority task is to improve teachers' professionalism which would correspond to the modern life requests. Consequently, modern education should not only ensure forming a certain system of knowledge for students but also to develop in everyone the need for constant independent mastering of that knowledge, that is, to contribute to independent activity (Bermus, 2005; Yasvin, 2001; Novikov, 2000).

The demand for competent specialists directs the formation of modern professional education's content towards achieving international standards, continuity of education throughout one's whole life and transfer from the discipline-specific education to the interdisciplinary one, and ensures flexibility and mobility of professional education from the perspective of mastering required competencies that allow to promptly react to changes in the job market and comply with the employer's requirements (Fedorov & Davydova, 2014; Davydova et al., 2016). Thus, the aim of the modern professional education is not only to teach a person to do something and to obtain a professional qualification but also to provide a possibility to handle various life and professional situations and the ability to function effectively in the new dynamic socio-economic conditions (Fedorov & Falco, 2008, 2010; Verbitskaya, Matafonov & Fedorov, 2005).

Systematic approach to education is a way of theoretical presentation and reproduction of an object as a system. Notions and principles of the systematic approach help to create new objects for learning by setting structural and typological characteristics of those objects, thus contributing to forming constructive research programs. The systematic approach is characterized by the need for developing a personal aspect of specialists' training system, taking into account interests and dispositions of students and their potential abilities. Content-related principles of the systematic approach help to establish the insufficiency of old traditional learning subjects in order to set and solve new tasks (Afanasiev, 1990; Babansky, 1982; Blauberg & Yudin, 1973).

The competency-based approach is a way to achieve new quality of education and determines the direction in which educational process is changing, priorities and the content-related resource of development and in that



case new approach to evaluating a person's level of education is defined as only knowledge, skills and expertise alone do not allow to completely show and measure the level of education quality (Vvedensky, 2003; Zimnyaya, 2006; Zeer, 2007).

Design is a syncretic type of creative activity the main purpose of which is functional organization of environment including subject one, communicative and political. This definition is based on the basic feature that allows in any context to differ between design works and art or applied art works – functionality. Yet design has several features common with artistic activity of a person that are noted in studies on pedagogy, art psychology and artistic pedagogy – integrity of logical and imaginative, emotional and rational, material and spiritual, theoretical and practical; the result of the activity is always linked to transformation of activity subjects themselves – perception (creation, reproduction) of a product of art; the subject of students' activity is a phenomenon to which visualization, metaphor city and emotionality are inherent; a subject of activity has such qualities as originality of individual-personal expression of senses and relations, susceptibility to singularity of artistic manifestations of others and the ability for artistic dialogue; creative possibilities of design not only as a type of production and practical activity but as an instrument of socio-cultural creativity (Vygotsky, 1998; Melik-Pashaev, 1981; Sidorenko, 1984; Minervin, 2004; Shein, 2002; Shimko, 2005).

The technology of implementing the structure and content of vocational design teacher's artistic-design competency formation is presented by us as an integral structure possessing the unity of the following components:

- *motivational*: sense of purpose of mastering artistic-design-creative activity, formed need for applying artistic-design knowledge, skills and personal qualities;
- *content-related*: logical formation of the content of teaching academic disciplines taking into account intra- and interdisciplinary interaction on the basis of the major discipline; mastering types and means of artistic-design activity; improving expertise, skills and personal qualities on the basis of interdisciplinary and inter-industrial integration;
- *process-related*: structuring the forms of education (lectures, seminars, practical and laboratory lessons, as well as independent work of students); development of the methodological support package (working programs of artistic-design disciplines and practices, methodological guidelines for executing tests, course papers and graduate qualification papers, didactic tests); using methods and practices of education based on the kind of cognitive activity (reproductive, problematic-searching, exploratory); using modern information and technical means of teaching in accordance with the stages of education process; using artistic and project-design tasks of increasing complexity level;
- *evaluative*: test diagnostics on the basis of developed rating system that defines a student's ability to master artistic-design competency and readiness to carry out artistic-design activity according to the accepted level system of evaluating the formedness of artistic-design competency (obligatory, advanced, optimal);
- *reflexive*: forming of such important personal and professional qualities of students as independence, responsibility for decisions taken, communicative

skills, ability to see one's achievements and errors as reflected by different opinions, ability to transfer knowledge, skills and mental actions' system to new non-standard conditions, skills of perceiving, analyzing, combining and synthesizing prior mastered work methods which allows to construct behavior adequate to social norms and requirements of a profession.

Conclusion

The analysis of theory and practice of vocational design teachers' training allowed us to justify the necessity to form skills and knowledge and personal qualities on the basis of the competency-based and system approaches which led to significant results on a practical level in forming artistic-projection competency.

The notion "Artistic-design competency of vocational design teacher" is clarified, its components determined, its forming levels defined, and that allowed us to justify the possibility of formation of the competency under study based on systematization and integration, cross-disciplinary interaction and complementarity of disciplines of industry-specific and special training, consistency and continuity in mastering the profession of vocational design teacher.

The generalized structure of professional competency of vocational design teacher is specified, it being a body of general culture and professional competencies, and the position of artistic-design competency in the structure of professional competencies' is defined.

Based on the analysis of the education plan for specialty "Interior design" the complex of didactic process disciplines is organized in accordance with the specific features of the profession of vocational design teacher which allowed us to classify them in the following way: general education disciplines, psychology-pedagogical and artistic-design. The complex of disciplines of each group forms professional skills, knowledge and personality traits that together form professional competency of future specialist.

The structural-conceptual model of forming artistic-design competency of vocational design teacher is theoretically substantiated, developed and tested during exploratory and experimental work; the model includes the following blocks: *scientific-methodological* which includes fundamentals of social, historical and natural sciences (philosophical, psychological and cultural studies' aspects); and *practice-oriented* block including educational activity determined by specific features of designer's activity (artistic – design – creative).

The complex of organizational-pedagogical conditions of implementing the structural-conceptual model of forming artistic-design competency is identified which includes integrating disciplines of industry-specific and special training, projecting the educational content based on the major discipline, executing tasks of actual artistic and design-creative nature; the complex includes the following technology components: motivational, content-related, process, judgment-based and reflective.

The system of integral evaluation of forming artistic-design competency of students majoring in Interior design is proposed which allows us to determine the level of its maturity (obligatory, advanced, optimal).



The learning and methodological support is elaborated which corresponds to the structure and content of forming the artistic-design competency (steering documents of artistic-design disciplines and practices, tasks and methodological guidelines for writing review and course papers, the graduate qualification work, didactic tests etc.) and which allows purposeful formation of artistic-projection competency.

The analysis of the received results has shown that the suggested hypothesis is confirmed, and at the same time the research does not claim to cover all the aspects of the problem under study due to its diversity and brings up several issues that need to be solved. Among those are the issues of improving the learning process at the integrated level – expansion of interdisciplinary interaction among the groups of disciplines which form general culture (universal) and professional (general professional and special) competencies which are oriented towards interaction of psychology-pedagogical and artistic-design components aimed at specifics of vocational design teachers' professional activity.

The results of the research can be useful for academic researchers and practitioners in the sphere of professional and vocational education, as well as for students of pedagogical artistic-design educational institutions and other interested parties.

Acknowledgments

The research is performed with financial support of the Ministry of Education and Science of the Russian Federation within the project No. 2014/393.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Vera P. Falco is PhD, associate professor of Russian State Vocational Pedagogical University, Ekaterinburg, Russia.

Vladimir A. Fedorov is PhD, professor of Russian State Vocational Pedagogical University, Ekaterinburg, Russia.

Evgenij M. Dorozhkin is PhD, professor of Russian State Vocational Pedagogical University, Ekaterinburg, Russia.

Nina I. Merkushova is Associate professor of Samara State University of Economics, Samara, Russia.

Olga V. Bakanach is Associate professor of Samara State University of Economics, Samara, Russia.

References

- Afanasiev, V.G. (1990). *Systematicity and society*. Moscow: Nauka, 368 p.
- Babansky, Yu.K. (1982). *Optimization of the learning and cognitive process*. Moscow: Prosveshchenie, 192 p.
- Barkhin, B.G. (1982). *Methods of architectural design*. Moscow: Stroyizdat, 224 p.
- Bermus, A.G. (2005). Russian pedagogical education in the context of the Bologna process. *Pedagogy*, 10, 102 – 109.
- Blauberg, I.V. & Yudin, V.G. (1973). *Establishment and essence of the system approach*. Moscow: Nauka, 270 p.

- Davydova, N.N., Dorozhkin, E.M., Fedorov, V.A. & Konovalova, M.E. (2016). Research and Educational Network: Development Management. *IEJME-Mathematics Education*, 11(7), 2651-2665.
- Falco, V.P. & Stepanov, A.V. (2008). Rating technology in the teacher-designer training quality management system. *The Education and science journal*, 5(53), 98–107.
- Falco, V.P. (2007). Forming professional competencies of vocational design teacher as illustrated by graduate qualification work taking into account the inter-industrial integration. *A learning session: search, innovations, prospects: Scientific and methodological collection of articles*. Chelyabinsk: Obrazovanie Publishing House, 96–102.
- Fedorov, V.A. & Falco, V.P. (2008). Structure and content of formation of artistic and project competencies of vocational design teacher. *Bulletin of the Chelyabinsk State Pedagogical University*, 12, 152–162.
- Fedorov, V.A. & Falco, V.P. (2010). *Artistic and project competencies of vocational design teacher: problems of formation*. Ekaterinburg: Publishing House of the Russian State Vocational Pedagogical University, 166 p.
- Fedorov, V.A. (1999). Quality of vocational education. *The Education and science journal*, 2(2), 189–198.
- Fedorov, V.A. (2001). *Vocational education: theory, empirics, practice*. Ekaterinburg: Publishing House of the Russian State Vocational Pedagogical University, 330 p.
- Fedorov, V.A. & Davydova, N.N. (2014). Control of the research and education network development in modern socio-pedagogical conditions. *Scientific bulletin of National Mining University*, 2(140), 126–133.
- Gromova, C.R. & Saitova, L.R. (2016). Pedagogical Conditions of Formation of Professional Competence of Future Music Teachers on the Basis of an Interdisciplinary Approach. *International Journal of Environmental and Science Education*, 11(13), 6162-6177.
- Kon, Y.I., Freyman, V.I. & Yuzhakov, A.A. (2013). Implementing the integral differential estimation criterion of competence acquisition. *The Education and science journal*, 6, 48-64.
- Melik-Pashaev, A.A. (1981). *Pedagogy of art and creative abilities*. Moscow: Znaniye, 95 p.
- Minervin, G.B. (2004). *Main tasks and principles of artistic design*. Moscow: Arkitektura-S, 96 p.
- Novikov, A.M. (2000). *Russian education in the new era. Paradoxes of legacy, vectors of development*. Moscow: Egves, 272 p.
- Shein, R.A. (2002). *Dialectics of design. Book 1. Mythdesign*. Ekaterinburg: "Thesis", 296 p.
- Shimko, V.T. (2005). *Basics of design and environmental projection*. Moscow: Arkitektura-S, 160 p.
- Sidorenko, V.F. (1984). Genesis of project culture. *Philosophy issues*, 10, 87–99.
- Tkachenko, E.V., Klimov, V.P. & Kozhukhovskaya, S.M. (2006). *Final assessment of vocational design teachers. Experience of implementation: study guide*. Saint-Petersburg: Tuskarora Publishing House, 111 p.
- Valeeva, R.A. & Amirova, L.A. (2016). The Development of Professional Mobility of Teachers in Supplemental Education System. *International Journal of Environmental and Science Education*, 11(9), 2265-2274. doi: 10.12973/ijese.2016.603a
- Valeeva, R.A., Korolyeva, N.E. & Sakhapova, F.K. (2016). Case-study of the High School Student's Family Values Formation. *International Journal of Environmental and Science Education*, 11(7), 1641-1649. doi: 10.12973/ijese.2016.369a
- Verbitskaya, N.O., Matafonov, M.E. & Fedorov, V.A. (2005). Competence of orientation and adaptation in the job market: acmeological foundations of the research. *The Education and science journal*, 5(35), 52–59.
- Vvedensky, V.N. (2003). Modeling of teacher's professional competency. *Pedagogy*, 10, 51–55.
- Vygotsky, L.S. (1998). *Psychology of art*. Rostov-on-Don: Phoenix Publishing House, 334 p.
- Yasvin, V.A. (2001). *Education environment: from modeling to projections*. Moscow: Smysl, 365 p.
- Zeer, E.F. (2006). *Personality-developing vocational education*. Ekaterinburg: Publishing House of the Russian State Vocational Pedagogical University, 170 p.
- Zeer, E.F. (2007). Implementation of the competency-based approach in vocational education. *Theory and Practice of Vocational Pedagogical Education*. Ekaterinburg: Publishing House of the Russian State Vocational Pedagogical University, 159–177.



- Zimnyaya, I. A. (2003). Key competencies are the new paradigm of the education result. *Higher education today*, 5, 34–42.
- Zimnyaya, I. A. (2006). Competency-based approach and its place in the system of modern approaches to problems of education (theoretical-methodological aspect). *Higher education today: reforms, new developments, experience*, 8, 20–26.